UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,549	09/23/2003	Yuan-Chi Chang	YOR920030366US1	2911

7590 02/27/2007	EXAMINER
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ART UNIT	PAPER NUMBER
2161	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/668,549	CHANG ET AL.
	Examiner	Art Unit	
	Monica M. Pyo	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>28 November 2006</u>.

2a)☐ This action is FINAL. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-4,7-14 and 17-21</u> is/are pending in the application.

 4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-4,7-14 and 17-21</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>29 October 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

 a)☐ All b)☐ Some * c)☐ None of:

  1.☐ Certified copies of the priority documents have been received.

  2.☐ Certified copies of the priority documents have been received in Application No. _____.

  3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on 11/28/2006 has been entered.

2.   Claims 1-4, 7-14, 17-21 are currently pending in this application.   In the Amendment

filed 11/28/2006, claims 1, 7-9, 11, 17-19 and 21 are amended.

3.   Claims 1-4, 7-14, 17-21 are rejected.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claims 1-3, 7-13 and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable

over U.S. Patent No. 5,890,150 issued to Ushijima et al. (hereafter Ushijima) and in view of U.S.

Patent No. 6,519,604 issued to Acharya et al. (hereafter Acharya).

Regarding Claims 1, 11, and 21, Ushijima discloses a method of rewriting a query during

a database query processing operation, comprising the steps of:

A).   processing the query having one or more target attributes in accordance with at least a portion of a data set producing query results, as a specific order number to process the query (Ushijima: col. 5, lns. 40-col. 7, lns. 23);

B).   analyzing the one or more target attributes and one or more auxiliary attributes, from the query results to determine a relative selectivity for each of the one or more target attributes and the one or more auxiliary attributes, as varies of columns to aggregate depend on the result of target attributes groupings (Ushijima: col. 6, lns. 20-29; col. 7, lns. 47-col. 8, lns. 5, 54-59; col. 10, lns. 12-24); and

C).   corresponding to at least one of the one or more auxiliary attributes having a high relative selectivity, as a column of UNIT_PRICE, ORDER NO, ORDER AMOUNT (Ushijima: col. 7, lns. 47-col. 8, lns. 5).

Ushijima does not explicitly disclose:

C).   appending the query with at least one new predicate.

However, Acharya discloses:

C).   appending the query with at least one new predicate, as adding an error formula for the sum_error function (Acharya: col. 11, lns. 39-44).

Additionally, Acharya specifically discloses:

-         **rewriting a query,** as rewriting a query with changes (Acharya: col. 11, lns. 32-36)

It would have been obvious to a person with ordinary skill in the art at the time of invention to combine this rewriting query process of Acharya into the query processing system of Ushijima to utilize the rewriting query process. Skilled artisan would have been motivated to

incorporate the Acharya's teaching of rewriting query process in the Ushijima's query processing

system to enhance the efficiently querying each row of information from the database (Acharya:

col. 11, lns 63-67).

Regarding Claims 2 and 12, Ushijima and Acharya disclose the method wherein the at

least a portion of the data set comprises sampled records from the data set (Ushijima: col. 7, lns.

48-60).

Regarding Claims 3 and 13, Ushijima and Acharya disclose the method further

comprising the step of sampling data records from the data set (Ushijima: col. 9, lns. 61-67; col.

10, lns. 1-14).

Regarding Claims 7 and 17, Ushijima and Acharya disclose the method wherein the step

of analyzing the one or more target attributes and one or more auxiliary attributes comprises the

steps of:

extracting statistics for each of the one or more target attributes and the one or more

auxiliary attributes from the query results (Ushijima: col. 7, lns. 48-56; fig. 12) and (Acharya:

col. 11, lns. 39-44);

extracting statistics for each of the one or more target attributes and the one or more

auxiliary attributes from the at least a portion of the data set (Ushijima: col. 7, lns. 57-65; fig. 13)

and (Acharya: col. 11, lns. 39-44); and

evaluating the relative selectivity for each of the one or more target attributes and the one

or more auxiliary attributes in accordance with the extracted statistics (Ushijima: col. 7, lns. 66-

col. 8, lns. 10, 60-67; col. 11, lns. 1-12; fig. 14) and (Acharya: col. 11, lns. 39-44).

Regarding Claims 8 and 18, Ushijima and Acharya disclose the method wherein the step

of evaluating the relative selectivity comprises the steps of:

comparing a range of statistics from the query results to a range of statistics from the at

least a portion of the data set for each of the one or more target attributes and the one or more

auxiliary attributes (Ushijima: col. 7, lns. 47-col. 8, lns. 5; col. 15, lns. 31-52) and (Acharya: col.

11, lns. 39-44); and

determining whether each of the one or more target attributes and the one or more

auxiliary attributes is a selective attribute by comparing a ratio of the ranges to a predetermined

value (Ushijima: col. 12, lns. 63-67; col. 13, lns. 1-2) and (Acharya: col. 11, lns. 39-44).

Regarding Claims 9 and 19, Ushijima and Acharya disclose the method wherein the step

of appending at least one new predicate comprises the steps of:

evaluating relative selectivity for each of the one or more target attributes and the one or

more auxiliary attributes (Ushijima: col. 9, lns. 47-54) and (Acharya: col. 11, lns. 39-44);

selecting at least one auxiliary data attribute with a high relative selectivity (Ushijima:

col. 7, lns. 47-col. 8, lns. 5; col. 9, lns. 55-60);

forming at least one new predicate (Ushijima: col. 10; lns. 6-11); and

appending the query with the at least one new predicate (Ushijima: col. 10, lns. 12-24).

Regarding Claims 10 and 20, Ushijima and Acharya disclose the method further comprising the step of performing a query processing operation on a data set with a rewritten query (Acharya: col. 11, lns. 38-55).

6.   Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushijima in view of Acharya as applied to Claims 1-3, 5-13 and 15-21 above, and further in view of U.S. Patent Application Publication No. 2003/0167259 by Casson et al. (hereafter Casson).

Regarding Claims 4 and 14, Ushijima and Acharya disclose the method wherein the step of sampling data records comprises the step of sampling from the data, (Ushijima: col. 9, lns. 61-67; col. 10, lns. 1-14).

Ushijima and Acharya do not specifically disclose: every Nth record, wherein N is a positive integer.

However, Casson discloses: every Nth record, wherein N is a positive integer (Casson: pg. 3, [0041]).

It would have been obvious to a person with ordinary skill in the art at the time of invention to combine this search query system of Casson into the rewriting query process of Acharya and the query processing system of Ushijima to utilize the record selection method. Skilled artisan would have been motivated to incorporate the Casoon's teaching of numbered record sampling in the Acharya's rewriting query process and the Ushijima's query processing

system to utilize the precision in selection database records for retrieval, which discloses "search queries 41b that generated the optimum consumer response" (Casson: pg. 3, [0039]).

Response to Arguments

7.   Applicant's arguments filed 11/28/2006 have been fully considered but they are not persuasive.

Applicant argues that Ushijima in view of Acharya fail to disclose "query rewriting during database query processing." However, the features, upon which applicant relies (i.e., query rewriting) are not recited in the claims. It should be noted that the recitation in the preamble would not be given any patentable weight.

Additionally, in response to applicant's argument that Ushijima in view of Archarya fails to establish a prima facie case of obviousness. It should be noted that one cannot show nonobviousness by attacking reference individually where the rejections are based on combinations of references. As explained above, Ushijima in view of Archarya disclose applicant's broadly claimed limitation ("the query results are analyzed to determine a relative selectivity for each of the one or more target attributes and the one or more auxiliary attributes" in col. 6, lns. 20-29; col. 7, lns. 47-col. 8, lns. 5, 54-59; col. 10, lns. 12-24 of Ushijima), and therefore the applicant's argument against the references individually is not persuasive.

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica M. Pyo whose telephone number is 571-272-8192. The examiner can normally be reached on Mon-Fri 6:30 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Jeffrey Gaffin can be reached on 571-272-4146. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer·Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Monica M Pyo
Examiner
Art Unit 2161

mp
·12/16/2007

Leslie Wong
Primary Examiner